Claims

1. A method for determining the color effect of dispersive materials such as materials or biological substances of a multilayer system, in particular a series of layers in teeth or dental materials, characterized in that the remission of the multilayer system is calculated by means of Monte Carlo simulations on the basis of the respective intrinsic optical parameters of the different materials of the layer system, comprising dispersion coefficient μ_s, anisotropy factor g and corrected absorption coefficient μ_{ak}, and including, respectively, refractive index n, thickness d of the respective layer as well as dispersionphase function of the individual materials.

2. The method according to claim 1, characterized in that the intrinsic optical parameters are determined on the basis of spectrometric measurements.

3. The method according to claim 1, characterized in that the intrinsic optical parameters are taken from a data bank.

4. The method according to at least claim 1, characterized in that the intrinsic optical parameters dispersion coefficient μ_s, uncorrected absorption coefficient μ_a and anisotropy factor g of a material are calculated on the basis of macroscopic optical parameters of the material in the form of diffuse remission R_d as well as diffuse transmission T_d and/or total transmission T_t and/or collimated transmission T_c, taking into consideration the dispersion phase function of the material, thickness d of a layer of the material used during determination of the macròscopic parameters and refractive index n of the material by means of inverse Monte Carlo simulation.

5. The method according to at least one of the preceding claims, characterized in that the corrected absorption coefficient μ_{ak} is calculated for each material on the basis of the intrinsic optical parameters dispersion coefficient μ_s, uncorrected absorption coefficient μ_a, anisotropy factor g and remission of an optically dense layer consisting of the material having a thickness d_D and taking into consideration at least the thickness d_D, the dispersion phase function and the refractive index n of the material by means of inverse Monte Carlo simulation.

6. The method according to at least one of the preceding claims, characterized in that the remission of the layer system is calculated for the layer system consisting of different

materials on the basis of the corrected absorption coefficient μ_{ak}, the dispersion coefficient μ_s and the anisotropy factor g of each material, taking into consideration at least the dispersion phase function, the refractive index n and thickness d of each layer and series of layers by means of forward Monte Carlo simulation.

7. The method according to at least one of the preceding claims, characterized in that, when calculating the intrinsic optical parameters by means of the Monte Carlo simulation during experimental determination of the macroscopic optical parameter, measurement parameters and/or measurement geometries are taken into consideration.

8. The method according to at least one of the preceding claims, characterized in that the color effect is calculated from the remission.

9. The method according to at least one of the preceding claims, characterized in that the calculation of the color effect from the remission takes place by means of algorithms or multifactor analysis.

10. The method according to at least one of the preceding claims, characterized in that the color effect is calculated taking the geometric extension such as curvature of the layer system into consideration.